UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
CORPORATION FINANCE

February 20, 2020

Panna Sharma
Chief Executive Officer
Lantern Pharma Inc.
1920 McKinney Avenue, 7th Floor
Dallas, Texas 75201

Re: Lantern Pharma Inc.
Draft Registration Statement on Form S-1
Submitted January 24, 2020
CIK No. 0001763950

Dear Mr. Sharma:

We have reviewed your draft registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by providing the requested information and either submitting an amended draft registration statement or publicly filing your registration statement on EDGAR. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing the information you provide in response to these comments and your amended draft registration statement or filed registration statement, we may have additional comments.

Draft Registration Statement on Form S-1 submitted January 24, 2020

Cover Page

1. Reference is made to the "80%+ Blinded Prediction Success" claim in the center of your graphic under "RADR™ Data Architecture." The claim being made here is not clear and the footnote in reference to this claim is not legible. To the extent that this claim relates to the LP-184 biomarker study on page 96, please ensure that the footnote clearly states that this claim is based solely on your analysis of the dataset on preclinical LP-184 sensitivity and include a reference to the disclosure on page 96.

2. We note the inclusion of LP-100 under “Our Portfolio” at the bottom of your graphic. Please explain why you believe it is appropriate to present LP-100 as part of your portfolio given that Oncology Venture will be solely responsible for the development of

LP-100, including development of a plan for a clinical trial program; has the right to assign all or part of the agreement to a third party; and the limitation of your financial interest to a right to milestones and royalties.

3. Reference is made to "LP-300" under "Our Portfolio" at the bottom of the graphic. Please revise to make clear that you have not initiated clinical trials for LP-300 and the status of LP-300 depicted in the pipeline table is from a clinical program conducted by another biotechnology company that failed to successfully develop LP-300. In addition, given that your business model involves patient stratification, please indicate the subset of patients with adenocarcinoma you intend to study.

Prospectus Summary
Company Overview, page 1

4. We note your use of "rescuing" throughout the registration statement. The use of this term implies that the use of your proprietary technology on data from previous trials performed by other parties has resolved issues relating to safety and/or efficacy and will ultimately lead to the approval of your product candidates. You may disclose that administration of a product candidate was well tolerated or resulted in no serious adverse events and provide a discussion of prior trial results. However, it is not appropriate to imply that the use of your proprietary technology on data from previous trials performed by other parties has resolved issues relating to safety and/or efficacy and will ultimately lead to the approval of your product candidates. Please review the registration statement to eliminate the use of the term "rescuing." If you choose to say that the product candidates were well tolerated in previous clinical trials or that there were no serious adverse events or discuss prior clinical results, please clarify that prior results are not necessarily predictive of the outcome of future trials.

5. We note your statements here and elsewhere regarding the efficacy of your product candidates, including claims of increased efficacy and claims that LP-300 demonstrated efficacy in non-smoking females and that LP-100 showed efficacy when administered in combination with certain chemotherapies on page 108. Please remove all statements suggesting that your product candidates are effective. Safety and efficacy determinations are solely within authority of the FDA or other regulatory agencies. As your product candidates have not received approval, it is premature to state or suggest that they are effective.

Risk Factors
If we are required by the FDA to obtain approval of a companion diagnostic..., page 24

6. Please revise to clarify why this risk factor is applicable to your operations. To the extent that any of your product candidates may require approval of a companion diagnostic device, please expand your disclosure generally and, as applicable, for each product candidate to disclose whether approval of a companion diagnostic may be required for approval and subsequent commercialization of your therapeutic products.

We have obtained statistical data, market data and other industry data..., page 41

7. You state on page 41 that investors should not place undue reliance on certain data included in the prospectus. Additionally, you state on page 56 that you have not independently verified data from third parties. This risk factor and the Market and Industry Data section appears to disclaim your responsibility for the information in the registration statement. Please revise.

Management's Discussion and Analysis of Financial Condition and Results of Operations
Components of Our Results of Operations
Research and Development Expense, page 63

8. Please disclose the costs incurred during each period presented for each of your key research and development projects. If you do not track your research and development costs by project, please disclose that fact and explain why you do not maintain and evaluate research and development costs by project. Provide other quantitative or qualitative disclosure that provides more transparency as to the type of research and development expenses incurred (i.e. by nature or type of expense) which should reconcile to total research and development expense on the Statements of Operations.

Business
Our Drug Candidate Pipeline, page 72

9. Please shorten the arrows in your pipeline table to more precisely indicate the development status of each product candidate. As one example, we note that you are planning to conduct several additional preclinical studies prior to submitting an IND and initiating a Phase I trial for LP-184 in 2022, yet the arrow indicates that you have completed preclinical studies.

LP-300, page 79

10. Please delete reference to your product candidate as "first-in-class" as the term implies an expectation of regulatory approval. If your use of this term was intended to convey your belief that the products are based on a novel technology or approach, you may discuss how your technology differs from technology used by competitors and that you are not aware of competing products that are further along in the development process. Statements such as these should be accompanied by cautionary language that the statements are not intended to give any indication that the product candidates have been proven effective or that they will receive regulatory approval.

Phase II and III LP-300 Adverse Events Summary, page 87

11. Please expand your disclosure to discuss whether any serious adverse events were determined to be treatment-related. Please quantify and describe the treatment-related serious adverse events.

Acquisition of Tavocept® (LP-300) Rights from BioNumerik, page 93

12. Please expand your disclosure regarding the Assignment Agreement with BioNumerik to include the royalty term.

AF Chemicals, page 108

13. Please expand your discussion regarding your license agreement with AF Chemicals, LLC and your drug license and development agreement with Oncology Venture A/S on page 109 to disclose the termination provisions. Please also revise your discussion of the license agreement with AF Chemicals, LLC to provide the aggregate milestone payments for LP-184 and royalty term.

Patent Portfolio, page 113

14. As to your material patents and patent applications, please revise to disclose the corresponding expiration dates (or expected expiration dates).

15. On page 115, you state that you are aware of prior art that may invalidate certain claims of one of your U.S. patents covering LP-100, LP-184, LP-300 or its applications. Please revise to disclose the specific product candidate(s) for which the patent may be subject to invalidation. Please also revise your risk factor disclosure, as applicable.

Certain Relationships and Related Party Transactions
Acquisition of Tavocept® (LP-300) Rights from BioNumerik, page 147

16. Please provide the approximate dollar value of the amount of Mr. Margrave's interest in the Assignment Agreement. Please see Item 404(a)(4) of Regulation S-K.

Exhibits

17. We note that your forum selection provision in your By-Laws filed as Exhibit 3.1(iv) to the registration statement identifies the Court of Chancery of the State of Delaware (or, if the Court of Chancery does not have jurisdiction, the federal district court for the District of Delaware) as the exclusive forum for certain litigation, including any "derivative action." Please disclose whether this provision applies to actions arising under the Securities Act or Exchange Act. If so, please also state that there is uncertainty as to whether a court would enforce such provision. If the provision applies to Securities Act claims, please also state that investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder. In that regard, we note that Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. In addition, please provide related risk factor disclosure describing the exclusive forum provision and its impact on shareholders, including that shareholders may be subject to increased costs to bring a claim, and that the provision

could discourage claims or limit investors' ability to bring a claim in a judicial forum that they find favorable.

18. Please re-file Exhibit 10.7 in the proper searchable format. See Rules 301 and 304 of Regulation S-T.

General

19. Please supplementally provide us with copies of all written communications, as defined in Rule 405 under the Securities Act, that you, or anyone authorized to do so on your behalf, present to potential investors in reliance on Section 5(d) of the Securities Act, whether or not they retain copies of the communications.

You may contact Sasha Parikh at 202-551-3627 or Vanessa Robertson at 202-551-3649 if you have questions regarding comments on the financial statements and related matters. Please contact Irene Paik at 202-551-6553 or Jeffrey Gabor at 202-551-2544 with any other questions.

Sincerely,

Division of Corporation Finance
Office of Life Sciences

cc: Scott E. Bartel, Esq.